

INDIANA

Epidemiology

NEWSLETTER



Indiana State
Department of Health

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Measles: Confirmed Case in a University Student, January 2006

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Vaccine-Preventable Disease Epidemiologist

On January 20, 2006, the Indiana State Department of Health (ISDH) was notified of a suspected measles case in a young adult male, who is currently a student at a large university in Indiana. Serological analysis performed by the ISDH Laboratory and the CDC Measles Laboratory confirmed the diagnosis of measles on January 24. The case had recently traveled to Eastern Europe, where a measles outbreak is presently being reported. The student developed fever and prodromal symptoms of measles (cough, conjunctivitis, and coryza) beginning January 15, with a rash onset occurring on January 18. The case is a foreign-born student, who first entered the United States in August, traveled to his homeland in December, and returned to Indiana on January 9. During enrollment at the university, he reported to the registrar's office that he had received prior measles vaccination. However, after disease developed and further record review, his parents could not verify documentation of measles vaccination.

Measles is a highly infectious disease and is characterized as having generalized maculopapular rash, fever of ≥ 101 degrees F, and at least one of the following: cough, coryza, or conjunctivitis. The infectious period for measles is considered to be from about one day before the appearance of prodromal symptoms (usually 4 days prior to rash onset) to four days after rash onset. The incubation period is 7-18 (usually about 10) days from exposure to onset of fever.

Control measures included contacting all persons who were at the hospital emergency department where the student sought medical care. In addition, several students who had intense exposure were contacted. These persons were: 1) notified of their potential exposure, 2) informed of typical measles symptoms, 3) told what to do if they developed symptoms, and 4) asked to provide measles immune status. A measles alert was distributed to medical providers in the

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community notifying them of the case and the appropriate laboratory testing procedures and reporting measures if new cases were suspected.

The likelihood of additional cases was low given the high level of immunization in the community where the case occurred and the immune status of known contacts. But, if cases were to develop from exposure to this student, rash onset would be expected to occur between January 29 and February 4. At the time this article was written and published, no additional cases had been reported.

Measles was eliminated from the United States in 1997 but is still endemic in many parts of the world. All measles cases that occur in the United States result from an international importation or spread from an imported case. Because the disease is endemic or epidemic in many parts of the world, the Advisory Committee on Immunization Practices (ACIP) recommends that all persons who travel internationally be vaccinated for measles to reduce the risk for infection among travelers. The largest outbreak of measles in Indiana since 1990 occurred in May-June 2005. This outbreak was the result of foreign travel by an unvaccinated Indiana resident. This 34-case outbreak could also have been prevented by adherence to long-standing ACIP recommendations as reported in the MMWR article (October 28, 2005/54(42);1073-1075) entitled “[Import-Associated Measles Outbreak – Indiana, May-June 2005.](#)”

Success with PHESS

Michael Wade, MPH
Syndromic Surveillance Epidemiologist

The purpose of the Indiana State Department of Health (ISDH) Public Health Emergency Surveillance System (PHESS), also known as syndromic surveillance, is to help protect the health of Indiana residents through the early detection of disease outbreaks and other public health emergencies, including acts of bioterrorism.

A very important aspect of syndromic surveillance is its use of real-time, or near real-time data. Often, as outbreaks occur, those affected may not receive a definitive diagnosis from a health care provider or may try to self-medicate symptoms associated with an outbreak of illness. In addition, the early symptoms of exposure to agents most likely to be used for bioterrorism are similar to those of the common cold and influenza. The sooner an outbreak or other public health emergency is detected, the more rapidly a response can be initiated, ultimately reducing morbidity and mortality. The term “syndromic surveillance” is used because cases are determined based on reported symptoms that correspond to a particular syndrome, in contrast to traditional surveillance which determines cases through confirmed lab tests. The following summaries of real events demonstrate the potential power of the ISDH PHESS to augment surveillance efforts in the state and, hence, protect Indiana citizens.

Event #1

On December 21, 2005, in the early morning hours, seven individuals sought care at an Indiana hospital emergency department. All registered the same chief complaint–“dizziness”. On that evening, the PHESS investigators observed a cluster of neurological syndrome cases (the

category for “dizziness”) among the surveillance data. Although it is not unusual to identify sporadic neurological syndrome cases, it was not typical to observe seven of them clustered this tightly. The ISDH Syndromic Surveillance Epidemiologist contacted the appropriate ISDH Field Epidemiologist and requested follow-up. Ultimately, the PHESS staff learned that the cluster was comprised of seven family members, who suffered effects of carbon monoxide exposure in their home while sleeping that night.

Event #2

A similar scenario appeared in the ISDH syndromic surveillance data on December 28, 2005. Epidemiologists observed data for a syndromic alert consisting of 22 gastrointestinal cases. Eight of the cases presented at the same hospital emergency department, at virtually the same time, from the same residential ZIP code, and expressed the same chief complaint—“vomiting”. Thinking this type of data uniformity indicated a high probability that a significant relationship existed among the eight cases, the ISDH Syndromic Surveillance Epidemiologist contacted the appropriate ISDH Field Epidemiologist and local health department in the area of interest. The local health department followed up with the hospital emergency department and learned the group of eight cases actually represented a single family. Further investigation conducted by the local health department indicated the family members’ vomiting may have been related to food they had all consumed during their previous evening meal.

Event #3

On November 6, 2005, a deadly tornado devastated Vanderburgh and Warrick Counties in southern Indiana, killing 24 and injuring many more. On that date, the PHESS reflected 328 emergency department visits from the affected counties. Of the total visits, 249 (76%) were classified as “other syndromes” because they did not fit in the eight syndromic categories that are primarily meant to trigger infectious disease alerts potentially linked to bioterrorism or other public health emergencies. Epidemiologists were easily able to leverage the sophisticated functionalities of the surveillance system to discern the syndromic disease cases of interest, versus the trauma cases related to the tornado and, therefore, did not respond to what would have been a false alarm from an infectious disease perspective.

While the syndromic cluster investigations summarized above did not pose a widespread public health threat, they did demonstrate the ability of the PHESS to identify illness clusters as small as a single family. Had the exposures involved larger numbers of people and potentially multiple hospitals, the PHESS would have detected those. A spatial (geographic) alert would appear in the syndromic surveillance data indicating that many individuals within a certain area had reported a similar chief complaint, thus producing a cluster. These spatial clusters are difficult to see from the perspective of a single hospital emergency department; however, the PHESS has a perspective which allows epidemiologists to observe data from multiple emergency departments simultaneously, thus enabling the recognition of relationships that may otherwise go undetected. Furthermore, the PHESS performed as designed during the November 2005 tornado: analysts were able to “see through” trauma data and view cases that were more likely to be related to infectious disease.

With 43 hospitals currently submitting emergency department data, another 22 hospitals targeted by August 30, 2006, and the ultimate goal of all 114 Indiana hospital emergency departments enrolled, the PHESS is rapidly becoming a robust surveillance tool for the ISDH.

Additional PHESS data sources include over-the-counter drugs sales volume, Indiana Poison Center outlier data, and school absenteeism notification. These data can greatly augment data from hospital emergency departments or may independently trigger an epidemiologic investigation depending on the particular health event involved.

IMPORTANT VACCINE NOTE

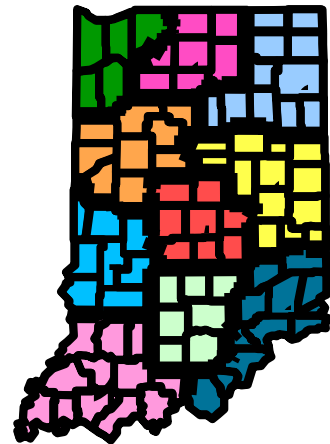
Please observe the following changes to the shipping and storage temperatures of yellow fever vaccine manufactured by Sanofi Pasteur. Shipping of yellow fever vaccine **frozen** is no longer required. This has eliminated the need to ship yellow fever vaccine with dry ice.

Shipping and storage of yellow fever vaccine should be maintained between 2-8 degrees Celsius or 35-46 degrees Fahrenheit. If you have any questions regarding this change, please call 1.800.vaccine (822.2463).

NEWS FROM THE FIELD.... DISTRICT 10

Dubois County Prepares for an Influenza Pandemic

Karen Gordon
District 10 Field Epidemiologist



As the concern persists that the avian influenza virus H5N1 will someday mutate into a virus which transmits readily from human to human, community leaders in Dubois County assembled to take a further step in preparing for such an occurrence. The Dubois County Health Department (DCHD) took the lead in organizing a tabletop exercise which focused on the locality's response to pandemic influenza. The DCHD and Memorial Hospital, as partners on the Dubois County Bioterrorism Committee, hosted the exercise on January 26, 2006. The event was held in the Medical Arts Conference Room on the campus of Memorial Hospital in Jasper. Rick Gunselman, Chief of the Jasper Police Department, facilitated the event.

Deborah Capps, Public Health Coordinator for the DCHD, was instrumental in developing a scenario, targeting participants, setting the agenda and location, and providing handouts and

direction. She received assistance from other health department staff and the planning committee, comprised of Rick Gunselman; Sue Willis, Memorial Hospital Infection Control Nurse; Dawn McKenzie, Infection Control Nurse at St. Joseph's Hospital in Huntingburg, and Karen Gordon, ISDH District 10 Field Epidemiologist.

Eighty participants attended the tabletop exercise and represented several diverse groups, including staff from both hospitals, four law enforcement agencies, emergency management, Red Cross, fire department, two elected officials, mental health, three school districts, local media outlets, and public health.

The scenario is set in the early days of pandemic influenza becoming a reality. A set of circumstances is described to participants, followed by a discussion period. The timeline then moves forward with some new developments and further discussion. The scenario begins with confirmation that a novel influenza virus is responsible for a significant number of human cases outside of the United States. By day five, urban areas in the United States are reporting cases as well. By day seven, the infection is causing high absenteeism in the local school systems.

The tabletop exercise offered the participants the opportunity for dynamic and thought-provoking discussion. It began with supposition on possible public reaction to the news that an infectious disease was a very real threat and what high absenteeism rates might mean to employers and schools. There was a recognized need for a coordinated message to the media to stem public anxiety. Discussion then proceeded into issues concerning availability, or rather lack of, antiviral treatment or a vaccine for a pandemic strain of influenza; whether there would be any type of manpower or financial assistance available from the state or federal level; patient demand for medical and hospital care exceeding the current capacity and the need for off-site triage or treatment centers; isolation and quarantine measures; and the extension of law enforcement needs to enforce quarantine orders and provide protection for responders and limited resources. The schools elected to voluntarily close and offered their properties as potential off-site centers to handle the patient surge.

From the outset, the DCHD was the lead agency in the response effort. Donna Oeding, DCHD Administrator, served as the Incident Commander (IC). She first assembled a surveillance team to determine the extent of the disease spread and what could be done to control the outbreak. As it became necessary, she established an Emergency Operations Center (EOC) and designated those who would occupy positions as set forth in the National Incident Management System (NIMS). To visually reinforce the understanding of the NIMS, the facilitator had members of the command structure take a chair in front of the audience and alongside the IC.

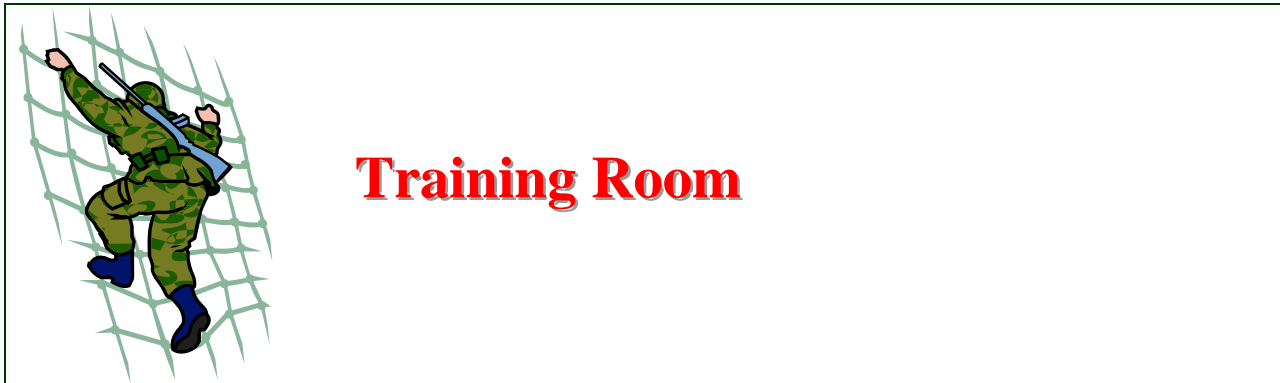
Some of the most frequent recommendations from participant evaluation forms indicated:

- the DCHD needs to disseminate more education to the public on pandemic influenza and what people can do to plan for it;
- all local agencies need to devise or update an emergency plan which addresses pandemic influenza; and
- an interest in having a future exercise on pandemic influenza which either reflects advances in planning or takes the scenario into later stages of the response effort.

The large turnout of participants may have actually led to the few drawbacks noted, which centered on time and space constraints. Those constraints did not allow for small groups or in-depth discussion, and some mentioned having difficulty hearing all of the proceedings. The ISDH commends the Dubois County Health Department for its efforts to ensure that Dubois County is better prepared to respond to an influenza pandemic.

Correction

In the December, 2005 issue of the *Indiana Epidemiology Newsletter*, Tom Duszynski was incorrectly identified as the author of “Outbreak Spotlight: An Inapparent Outbreak of Salmonellosis in Perry County.” Karen Gordon, District 10 Field Epidemiologist, actually wrote the article. We apologize for the error.



**INDIANA STATE DEPARTMENT OF HEALTH
IMMUNIZATION PROGRAM PRESENTS:
*Immunizations from A to Z***

Immunization and Health Educators offer this FREE, one-day educational course that includes:

- Principles of Vaccination
- Childhood and Adolescent Vaccine-Preventable Diseases
- Adult Immunizations
 - Pandemic Influenza
- General Recommendations on Immunization
 - Timing and Spacing
 - Indiana Immunization Requirements
 - Administration Recommendations
 - Contraindications and Precautions to Vaccination
- Safe and Effective Vaccine Administration
- Vaccine Storage and Handling
- Vaccine Misconceptions
- Reliable Resources

This course is designed for all immunization providers and staff. Training manual, materials, and certificate of attendance are provided to all attendees. Please see the Training Calendar for presentations throughout Indiana. Registration is required. To attend, schedule/host a course in your area or for more information, please contact **Lynae Granzow** at **317.460.3669** or lgranzow@isdh.in.gov; **Angie Schick** at **317.460.3671** or aschick@isdh.in.gov; or <http://www.IN.gov/isdh/programs/immunization.htm>.

ISDH Data Reports Available

**The ISDH Epidemiology Resource Center has the following data reports
and the Indiana Epidemiology Newsletter available on the ISDH Web Page:**

http://www.IN.gov/isdh/dataandstats/data_and_statistics.htm

HIV/STD Quarterly Reports (1998-June 05)	Indiana Mortality Report (1999, 2000, 2001, 2002, 2003)
Indiana Cancer Incidence Report (1990, 95, 96, 97, 98)	Indiana Infant Mortality Report (1999, 2002, 2003)
Indiana Cancer Mortality Report (1990-94, 1992-96)	Indiana Natality Report (1998, 99, 2000, 2001, 2002, 2003)
Combined Cancer Mortality and Incidence in Indiana Report (1999, 2000, 2001, 2002)	Indiana Induced Termination of Pregnancy Report (1998, 99, 2000, 2001, 2002, 2003)
Indiana Health Behavior Risk Factors (1999, 2000, 2001, 2002, 2003, 2004)	Indiana Marriage Report (1995, 97, 98, 99, 2000, 2001, 2002)
Indiana Health Behavior Risk Factors (BRFSS) Newsletter (9/2003, 10/2003, 6/2004, 9/2004, 4/2005, 7/2005, 12/2005, 1/2006)	Indiana Infectious Disease Report (1997, 98, 99, 2000, 2001)
Indiana Hospital Consumer Guide (1996)	Indiana Maternal & Child Health Outcomes & Performance Measures (1990-99, 1991-2000, 1992-2001, 1993-2002)
Public Hospital Discharge Data (1999, 2000, 2001, 2002, 2003)	

HIV Disease Summary

Information as of December 31, 2005 (based on 2000 population of 6,080,485)

HIV - without AIDS to date:

382	New HIV cases from January 2004 thru December 2005	12-month incidence	5.87 cases/100,000
3,603	Total HIV-positive, alive and without AIDS on December 31, 2005	Point prevalence	59.13 cases/100,000

AIDS cases to date:

416	New AIDS cases from January 2004 thru December 2005	12-month incidence	6.50 cases/100,000
3,798	Total AIDS cases, alive on December 31, 2005	Point prevalence	62.12 cases/100,000
,798	Total AIDS cases, cumulative (alive and dead)		

Reported Cases of Selected Notifiable Diseases

Disease	Cases Reported in December MMWR Weeks 49-52		Cumulative Cases Reported January –December* MMWR Weeks 1-52	
	2004	2005	2004	2005
Campylobacteriosis	58	47	445	463
Chlamydia	1,273	1,584	18,435	20,166
<i>E. coli</i> O157:H7	7	9	58	78
Hepatitis A	5	7	59	57
Hepatitis B	37	15	80	56
Invasive Drug Resistant <i>S. pneumoniae</i> (DRSP)	42	18	196	197
Invasive pneumococcal (less than 5 years of age)	13	21	57	74
Gonorrhea	509	646	6,854	8,161
Legionellosis	10	3	55	32
Lyme Disease	4	2	32	33
Measles	0	0	0	33
Meningococcal, invasive	3	1	26	19
Pertussis	107	68	364	378
Rocky Mountain Spotted Fever	0	0	6	1
Salmonellosis	53	84	527	685
Shigellosis	55	12	261	185
Syphilis (Primary and Secondary)	4	6	61	63
Tuberculosis	11	21	128	146
Animal Rabies	2 (bats)	1 (bat)	12 (11 bats, 1 skunk)	12 (bats)
<p>*Note: Case totals for 2005 are preliminary and will change, as cases with onsets in 2005 which are still being investigated are completed and returned to the ISDH.</p> <p>For information on reporting of communicable diseases in Indiana, call the <i>ISDH Epidemiology Resource Center</i> at 317-233-7125.</p>				

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